

Getting the Most Out of Online Training: Integrating the Missing Ingredients

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A myriad of issues impact online learning or “eLearning” as the new millennium dawns. The global educational kingdom is alive with paupers, princesses, princes, and wizards, all on a quest for that holiest of grails - eLearning that fulfills the dream of technology enabled learning. And let there be no doubt, technology is changing the very nature of the learning process and fundamentally changing the educational process.

This digest of emerging educational trends is presented for the purpose of assisting fellow educational crusaders to discover the secrets that will enable long awaited technology-based educational breakthroughs, now and into the future.

DRIVING FORCES OF CHANGE

According to Peter Drucker (1997), “Economic productivity will only be achieved through a steep and persistent growth in the *productivity of knowledge work and knowledge workers*.” The opportunities for eLearning to impact business success via the acquisition and development of “knowledge” are emerging with unimaginable speed and unparalleled criticality.

Knowledge is information put to productive use (Davis & Botkin, 1994). Knowledge = data x information x application. It is information made actionable (Maglitta, 1996). “Knowledge” is then, in a business sense, the **capability to act productively and profitably**.

Workers, businesses and consumers in the 21st century will be engaged in **the process of “knowledge transfer.”** Through learning, employees will use their knowledge to generate knowledge capital for their organization. It is a continuous “**knowledge transfer**” chain in which **learning fuels knowledge**; and, **knowledge fuels successful organizational performance**.

This ability to master **the knowledge transfer chain** is predicted to be **THE competitive advantage** for organizational success in the new millennium.

IN SEARCH OF THE HOLY GRAIL

Imagine a highly interactive, synchronous, internet-managed learning experience between distant locations over vast na-

tional and international networks, providing learners with an ability to obtain simultaneous distance learning services from their geographically dispersed organizations, schools and other colleagues. This is the domain of the “Virtual Private Learning Network” or VPLN. VPLN’s, while not exactly the Holy Grail, are definitely on the path.

Technology is being used to make learning accessible anytime, anywhere, and better than ever. The question is not about technology but rather about how to create content that is engaging, motivating and leads to successful performance outcomes. Now we are getting closer to the Holy Grail.

Creating this magical content starts with having new concepts about how to think about the learning experience. We call this having a new architecture for learning which substantially changes the way we design, deliver and measure the learning experience.

THE GLOBAL LEARNING SOLUTIONS (GLS) LEARNING ARCHITECTURE

The GLS Learning Architecture developed by Lucent Technologies New Enterprise Networks Group illustrates how a well designed, integrated system can provide effective eLearning solutions. This system combines independent self-directed learning events (asynchronous) with a virtual classroom in which the instructor and most of the learners are at locations distant from each other. Within this model the Instructor is central to the teaching process, though not the only provider of information. He or she manages/facilitates the learning process by asking and answering questions, en-

sure that learning is taking place, and supplementing the course materials to reflect the unique requirements of the students and the organization. This live, interactive component is referred to in the industry as synchronous experiences, facilitated by an instructor. Both types of learning events take place where learning is most needed.

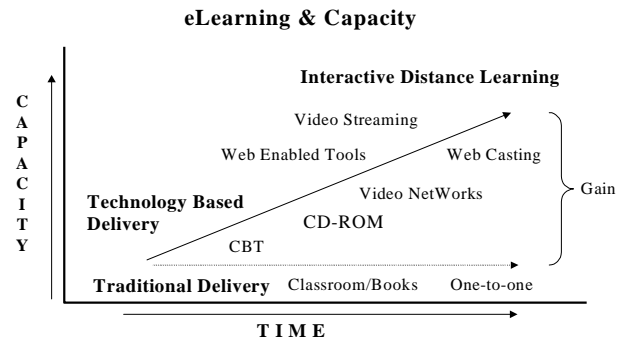
A typical course operates much like a college class. Learners meet for one to two hours for the live, facilitated part of the course and then work on their own until current assignments, exercises, and readings are complete. Often subsequent live sessions are scheduled with the Instructor to follow-up on assignments and discuss new material. The extent to which this happens depends on the instructional design, however. In the subsequent live, interactive sessions (the synchronous sessions), students can present results to the class, have questions answered, pose new questions, participate in group discussions, and receive their next assignment. In between live, synchronous sessions, the learner still has access to the Instructor and the other learners through chat rooms, threaded news groups, e-mail, and Instructor web "office hours." These tools are what we call the digital surround.

THE BENEFITS OF GLS

The GLS Learning Architecture allows GLS to attain its goals for training much larger populations faster and cheaper. It allows us to:

- Reach more learners quicker
- Serve learners who have been too busy to travel to a GLS training site
- Reduce the time off the job
- Compress actual learning time by as much as up to 35% and more in some cases
- Provide training equally as good as traditional classroom-based methods (assuming good instructional design in both instances)
- Offer learners a high degree of flexibility in meeting both job demands and professional development goals
- Reduce travel time and expense (usually comprises 45% of the true cost of training when you add this element to the direct costs)
- Exponentially increase capacity (see Figure 1)

Figure 1.



USING THE GLS LEARNING ARCHITECTURE

GLS has a few key distance learning technologies that very well support the GLS Learning Architecture for adult education and training. There is no one panacea for delivering training but, when combined in the right mix, as determined by the instructional design, these technologies can provide a powerful approach to distance learning using the GLS Learning Architecture. (see Figure 2)

- LucentVision Interactive (LVI) is one of the key VPLNs in use today. Built upon a business television infrastructure, LucentVision transformed itself into a true learning environment. By combining the power of the Internet and the reliability of the voice network coupled with a less expensive small-dish digital video technology we have created a VPLN that provides a high degree of interactivity to greatly expand the reach of experts to audiences around the world.
- BitRoom is a new Lucent-developed distance learning product that delivers live, interactive lessons via the Internet and/or Intranet. This product, developed by Bell Labs is now among the very few premier web-based distance learning tools. Best news of all, it's owned by GLS.
- TestGen. A web-based test/quiz delivery tool used primarily during the asynchronous portion of the learning program. Results are tabulated and reported to both students and the Instructor before the start of the next synchronous session. TestGen can also be used as the final culminating instructional activity, i.e., the final exam, so to speak. Results are passed to the HRIS database.
- The Web or CD-ROM. Either or both can be used to deliver lesson material in a self-directed, asynchronous mode.

- Videotape and workbooks. Often the inexpensive, time-honored approaches for asynchronous learning still work fine. Again, it depends on what is called for in the instructional design. High-powered learning can still take place with these more traditional approaches while still using the Web for communication with the Instructor and other learners during the self-directed portion of the learning program. The Web is also used for downloading large technical documents.
- Voice and Video networks combines with Internet and CD-ROM content provide additional interactive distributed learning network options.

Figure 2.

Multi-layer Approach to Content Delivery:

Level:	Content Type:	Distribution Channel:
L e a r n i n g	I Advanced Courseware	Live Classroom, Hands On Labs Broadband Interactive Channels
	II Basic Courseware	Broadband Interactive Channels: "L Channel, LVI, BitRoom, Video
	III Knowledge Sharing	Broadband Broadcasts: Multicasts, Videostreaming, BitRoom
	IV Prerequisites	Self Directed Learning: Web, CD-ROM, CBT

CASE STUDY: LUCENT TECHNOLOGIES SALES & MARKETING UNIVERSITY

In early 1999, LucentVision Interactive (LVI), a satellite and Internet based VPLN, was deployed within the Enterprise Networks Group of Lucent reaching 9,357 direct and indirect sales personnel. The network was intended to significantly increase the speed and amount of sales and technical training while reducing travel costs and lost time on the job. LVI was an immediate success delivering over 150 hours of training per month and equaling or exceeding the effectiveness of traditional leader led delivery while reducing the contact hours by 35%. Later that year, a proposal was presented to a senior Lucent leadership team to expand LVI into a Lucent-wide "Sales and Marketing University" extending the reach to 22,470 direct and indirect sales, technical sales support, marketing and product marketing personnel. The proposal was approved and a \$3.4M capital investment and \$2M expense budget was authorized to expand uplink portals in Atlanta, Chicago, Hilversum and Singapore and 120 additional global downlinks. Savings on this investment are expected to

be \$17M per year when fully deployed, achieving a break-even-point after only 18 months.

CRISES IN CAMELOT

Launching eLearning programs takes on all the aura of a full-blown crusade. The complexity of platforms, ISP's, firewalls, media selection, asynchronous, synchronous and portals not to mention performance tracking and coordination with other curricula create a formidable challenge. It is an uphill battle. One that requires a sophisticated management system to coordinate, integrate and manage all the pieces that make up the learning system. (see Figure 3)

Have you ever found yourself half through a complicated project only to find that if you had spent a little more time up front you could have saved significantly on resources, lost time and considerable costs? Unfortunately, this is happening with far too much frequency as organizations pursue their eLearning dreams.

One answer to the puzzle lies in creating a design powerful enough to carry the eLearning program through transitions it will face in changing technologies, and innovations and updates that are inevitable. In this scenario, front-end analysis must include cycle management and systems thinking. Putting all the pieces together in a coherent whole is the true challenge of eLearning. Are we getting closer to the Holy Grail? It's too soon to tell.

INCREASING LEARNING DEMAND

Learning requirements are exploding due to the rapid pace of technological change. It is estimated that change renders obsolete 50% of workers' skills every 3 to 5 years (Davis & Botkin, 1994). A 1998 U.S. Department of Labor study stated that "change" would necessitate retraining 75% of the workforce by the year 2000.

Not only are learning requirements changing, but knowledge bases are increasing. For example, a mechanic with a five hundred-page repair manual in 1965 could fix almost any car on the road. Today, that same mechanic, requires 500,000 pages, or 50 New York City telephone books full of information, to do the same job (Davis & Botkin, 1994).

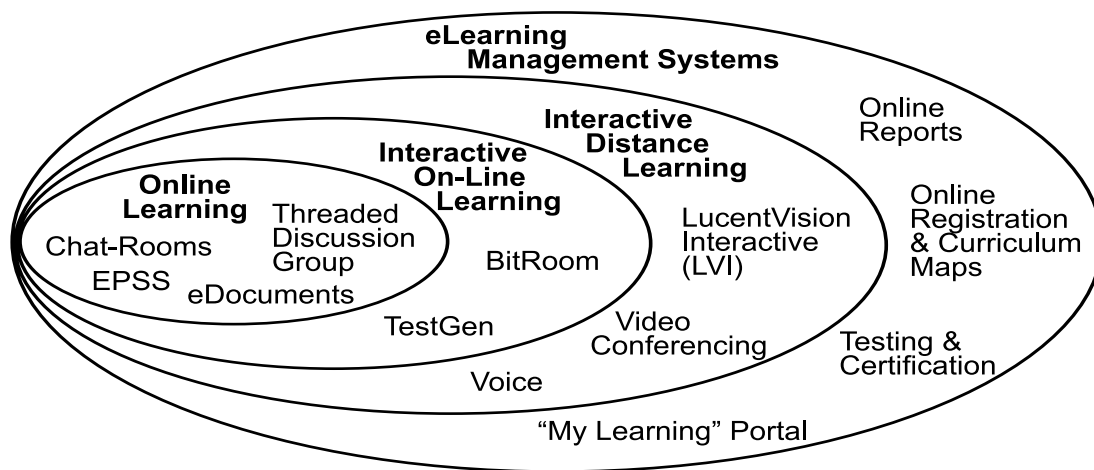
Additionally, business education requirements are enhanced when public education systems are unable to prepare adequate skill bases for "knowledge workers" entering the workforce. The U.S. Department of Education reports that 14% to 16% of American-born, college graduates are functionally illiterate in math and reading (Judy & D'Amico, 1997). Illiteracy is so great that it is estimated to cost U. S. business \$225 billion a year in lost productivity (Petrini, 1998).

Corporate education has been booming for the past several years. Just look back a few years to 1994. Employee education by corporations in 1994 was reported to be growing 10,000% faster than education of students by public and private educational systems (Davis & Botkin, 1994). Just to handle the growth in corporate employee training hours in 1992 (126 million hours) would have

required building 13 new Harvards (Davis & Botkin, 1994). These continuously expanding educational demands, against business' **limited capacity** to accommodate them, **are creating crises** for corporate education in Camelot. Yet, like any good crises, it is also creating **new opportunity**.

Figure 3.

Integrated Model of eLearning



THE LEARNING ROUNDTABLE

There is big money **in championing corporate educational needs**. As the knights gather around the table, **rewards are estimated at more than \$600 billion annually**, in today's market potential, for a successful conquest (Savitz, 1998). Their pennants carry familiar names earmarked with 1998 market values: SmartForce (\$1.7 billion); Knowledge Universe (\$.7 billion); and, Learning Tree (\$.6 billion) among others (Barrons Online, 1998). All stand ready to joust for a share of the corporate education market, especially in the burgeoning technology assisted distance learning niche.

In 1996, the distance learning market was estimated at \$1.5 billion annually and is growing at the rate of \$.5 billion every six months (Picard, 1996). In 1999, approximately 20% of the \$66 billion in corporate training was technology-based (Hambrecht, 2000). And, because technology-based training is so much more cost effective than classroom training, it is

expected to grow to 40% off all U.S. corporate training by 2003 (Hambrecht, 2000).

For those unafraid of the challenge, opportunities abound not only to solve learning capacity shortages within businesses, but to exploit corporate education as a primary revenue stream for businesses themselves. IBM Corporation, as an example, already generates over \$800 million annually in its customer training business alone.

Two key strategic weapons have emerged in the tournament to date. Both assist in providing learning infrastructures to meet 21st century requirements while controlling costs, enhancing returns on investment and generating revenue. One is the **promise of distance learning**. The other is **"collaborative" advantage** via unique alliances.

THE SWORD IN THE STONE

Excaliber offers a cutting edge against the dragons threatening business' capacity to meet success dependent learning needs for the 21st century. Yet, whosoever pulls Excaliber from the sacred stone must truly be worthy to lead. Valor displayed on the field of technology-assisted distance learning is clearly one testing ground.

Distance Learning

Technological advances have birthed powerful learning channels. These channels continue to evolve towards the learning ideal of two-way, interactive, full-motion, full-screen voice, video and data delivered to the student's desktop or classroom, anywhere, anytime (Kappel, 1998). Today's learning pipelines include satellite, audio or video conferencing, broadcast television, audio or video tape, radio, and computer-accessed technologies including intranets, internets and CD-ROMs (American Society For Training & Development, 1997). Additionally, multiple technologies have been merged into powerful "virtual" classrooms.

Distance learning technologies dramatically expand access to learners. Internet based applications can "virtually" accommodate an unlimited number of learners, in multitude of locations, enabling them to learn at their own pace and in their own time. Additional advantages can include: reductions in training time; higher levels of mastery and retention; reduced direct training expense (trainers, classrooms, travel expense and lost productivity costs for employees off-the-job); and, enhanced organizational capability to inventory, update and distribute "knowledge capital" (Rand, 1996).

Ford Motor Company, by example, set up a \$100 million satellite learning network for mechanics and sales personnel that beams up to eight live lectures at a time to any of 5,000 Ford dealerships. The interactive satellite system tripled the number of classes available annually, and paid for itself in reduced travel costs alone, in three years (Hamblen, 1998).

Outreach beyond the borders of a business into the "for-profit" market is also facilitated by distance learning infrastructures. The pipelines themselves can be rented or leased; nonproprietary training content can be sold; and, new programs can be developed which are beneficial to both the business and an external market. Today alone, there are 330 accredited graduate or undergraduate colleges (Phillips, 1998) offering about 750 accredited distance education programs (Macht, 1998), to over one million students in the United States (Vasarhelyi & Graham, 1997). The potential market, however, is global. Africa, Asia, China, Latin America, Mexico and the United Kingdom all have varieties of distance learning programs in place (Potashnik & Capper, 1998).

The "Collaborative" Advantage

A second key to unlock the secrets of Excaliber, and its competitive edge in the global educational kingdom, is, paradoxically, collaboration. No longer can a single knight venture successfully into the \$600 billion dollar marketplace alone, and return triumphantly home.

The array of blossoming cooperative linkages is one of the strongest emerging business trends today. Strategic alliances and joint ventures enable businesses to form flexible collaborative networks to achieve economies of scale and exponential growth, while enhancing their own learning about new technologies (The Trend Letter, 1998).

Learning alliances can offer multiple benefits. For instance, reduced training development costs can be achieved via linked organizations that co-fund learning programs for use across their mutual employee bases. Shared R&D costs lower expenditures to gain access to technological intellectual capital. Shared organizational content libraries can enable alliance organizations to simply avoid program development or purchase costs altogether. Cooperatives can also leverage their demand for training products and services to get volume discounts for each individual member.

LearnShare is a three-year-old consortium of 14 noncompeting businesses and 3 universities. Its mission is to bring leading edge technology to the delivery of highly effective corporate education at reduced cost via "share sourcing". Each member pays an entrance fee of \$300,000 for two years, and provides one voting member to LearnShare's Board of Directors. The Board develops policy, sets development priorities, and approves operating expenses. LearnShare's goal of becoming operationally self-supporting via grants and access fees from training providers was accomplished in two years. One LearnShare member cited a 30% to 50% cost savings in the purchase of new learning programs as a result of the affiliation. Another member boasted a \$1.2 million dollar saving in avoided new learning development costs during the first 90 days of membership (Excellence In Practice, 1997).

When businesses profit from alliances, while simultaneously protecting core competencies and intellectual capital, "collaborative advantage" becomes another weapon in the crusade to meet 21st century learning requirements.

LEARNING LEGENDS

As the educational mega-industry dawns, energized by the convergence of the computer, telecommunications, publishing and entertainment industries, **what will be the legend told around the global kingdom of our learning crusades?**

Will it be a legacy of business powered by knowledge? Will it be a yarn spun of creative solutions to learning capacity problems? Will it be the story of magical distance learning technologies and enlightened strategic alliances? Will it be

the tale of business productivity and profit in the 21st century?

The answer is unknown. The story has yet to be told. **It is a legend in the making.**

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